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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/304,298	05/03/1999	AUSTIN D. TAGGART II	TH1118	9493

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YUKIKO IWATA
SHELL OIL COMPANY
INTELLECTUAL PROPERTY
P.O. BOX 2463
HOUSTON, TX 77252-2463

EXAMINER	
SHIPPEN, MICHAEL L	18

ART UNIT	PAPER NUMBER
1621	

DATE MAILED: 03/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/304,298	TAGGART ET AL.	
	Examiner	Art Unit	
	MICHAEL L. SHIPPEN	1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 November 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18,21,22,125-128 and 156-259* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-18,21,22 and 125-128* is/are allowed.

6)☒ Claim(s) *156-259* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 26, 2002 has been entered.

Claim Rejections - 35 USC § 112[1]

Claims 156-259 are rejected under 35 USC 112, first and second paragraph. The claim language "means for separating at least a portion of said remainder of said phenolic compounds from said crude phenolic bottoms stream into an organic phase," "treating said crude phenol bottoms stream with a quantity of organic diluent effective to solubilize said remainder of said phenolic compounds, producing a mixture; allowing said mixture to phase separate, recovering said phenolic compounds in an organic phase," "treating said crude phenol bottoms stream with a quantity of organic diluent

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[1] The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 112 that form the basis for the rejections under this section made in this Office action:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.
>
> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

effective to solubilize said remainder of said phenolic compounds to produce a mixture, wherein a weight ratio of said organic diluent to said crude phenolic bottoms stream is at least 0.15:1; allowing said mixture to phase separate, recovering said phenolic compounds in an organic phase," and "treating said crude phenol bottoms stream with a quantity of organic diluent effective to solubilize said remainder of said phenolic compounds, producing a mixture; allowing said mixture to phase separate, recovering said phenolic compounds in an organic phase" fail to set forth all of these critical features. The only method of treating the crude bottoms stream described in the specification requires adding a) water and b) a diluent composition with subsequent separation into a hydrocarbon phase and aqueous phase. These claims do not set forth these critical features. It is appears that applicants intend for the claims to read on embodiments that do not require these features. Such embodiments are neither disclosed nor enabled in the specification as filed. If the claims are intended to be limited to such, the claims fail to particularly point this out.

Claims 169, 176, 183, 191, 192, 206, 213, 220 and 226-259 are rejected under 35 U.S.C. § 112, first and second paragraphs. There is no basis or description in the specification as filed for "said organic diluent has a first density sufficiently less than a second density of said phenol to attract remainder of said phenolic compounds from said mixture into an organic phase". Also, there is no indication in the specification that the density of the organic phase has any relationship to the attraction of the phenol. As such it cannot be determined what is within the purview of limitation "has a ... density

sufficiently less ... to attract ... phenolic compounds from said mixture into an organic phase".

Claim Rejections - 35 USC § 102[2]

Claims 156-167 are rejected under 35 U.S.C. 102(b) as being anticipated by USP 3,850,996. The reference teaches the separation of phenol in an organic phase from the heavy ends fraction of cumene hydroperoxide cleavage reaction mixture. As described in column 1 of the reference the heavy ends fraction is obtained from a cleavage mass which has had an acetone fraction and phenol fraction removed which is within the purview of the claimed method of affording the crude phenolic bottoms stream. The heavy ends fraction and the claimed crude phenolic bottoms stream appear to be one and the same. The reference discloses a means for separating the phenol into an organic phase by distillation anticipating the claims. The diluent recited in some of the independent claims reads on the hydrocarbons present in the separated phenol of the reference. As to the claims reciting the removal of the salts, substantially all of the salts of neutralization are removed in the production of phenol when the aqueous phase containing these salts is split from the organic phase immediately following the neutralization step. That is, during the standard phenol production process

[2] The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

that afford the heavy ends fraction, the salts of neutralization have already been substantially removed when the aqueous phase is separated in the neutralization step.

Claims 156-167 are rejected under 35 U.S.C. 102(b) as being anticipated by USP 2,715,145. The reference teaches the separation of phenol form the residue of cumene hydroperoxide cleavage reaction mixture. As described in the examples of the reference, the residue is obtained from a cleavage mass which has had an acetone fraction and phenol fraction removed which is within the purview of the claimed method of affording the crude phenolic bottoms stream. The residue and the claimed crude phenolic bottoms stream appear to be one and the same. The reference discloses a means for separating the phenol into an organic phase by pyrolyzing the residue anticipating the claims. The diluent recited in some of the independent claims reads on the hydrocarbons present in the separated phenol of the reference. As to the claims reciting the removal of the salts, substantially all of the salts of neutralization are removed in the production of phenol when the aqueous phase containing these salts is split from the organic phase immediately following the neutralization step. That is, during the standard phenol production process that afford the heavy ends fraction, the salts of neutralization have already been substantially removed when the aqueous phase is separated in the neutralization step.

Claims 156-259 are rejected under 35 U.S.C. 102(b) as being anticipated by USP 2,727,074. The reference teaches the separation of phenol from the residue of cumene hydroperoxide cleavage reaction mixture. As described in the examples of the reference, the residue is obtained from a cleavage mass which has had an acetone

fraction and phenol fraction removed which is within the purview of the claimed method of affording the crude phenolic bottoms stream. The residue and the claimed crude phenolic bottoms stream appear to be one and the same. The reference discloses a means for separating the phenol into an organic phase by extracting the residue with sodium hydroxide and treating with acid anticipating the claims. The diluent recited in some of the independent claims reads on the isopropylbenzene added to the residue, e.g., Example 2. As to the claims reciting the removal of the salts, substantially all of the salts of neutralization are removed in the production of phenol when the aqueous phase containing these salts is split from the organic phase immediately following the neutralization step. That is, during the standard phenol production process that afford the heavy ends fraction, the salts of neutralization have already been substantially removed when the aqueous phase is separated in the neutralization step.

Claims 156-167 are rejected under 35 U.S.C. 102(e) as being anticipated by USP 5,847,235 in view of USP 5,510,543. USP 5,847,235 teaches treating a phenol tar with water but does not teach reacting a cleavage mass as recited in the claims. USP 5,510,543 is not relied upon as prior art but as evidence that phenol tar is prepared by the cleavage mass treatment steps as recited in the instant claims. That is the phenol tar of the primary reference was necessarily prepared in the same manner as the claimed crude phenolic bottom stream. As to claims that recite the removal of the salts, substantially all of the salts of neutralization are removed in the production of phenol when the aqueous phase containing the salts is split from the organic phase immediately following the neutralization step, note for example splitter (**4**) of USP

5,510,543. That is, during the standard phenol production process that affords the tars used in the USP 5,847,235 process, the salts of neutralization have already been substantially removed. Third, USP 5,847,235 clearly teaches that salts are being removed. As to the claims that recite an organic diluent, this reads on the organic diluents that are inherently present in the tars treated by the reference, such as acetophenone, α,α-dimethylbenzyl alcohol and α-methylstyrene.

Claim Rejections - 35 USC § 103[3]

Claims 156-167 are rejected under 35 U.S.C. 103(a) as being unpatentable over USP 3,850,996 and USP 2,715,145. The references are applied as above. Besides being anticipated by the references, the claims read on obvious variants of the prior art processes It is well within the skill of the artisan to operate within the parameters suggested by the disclosure of the reference and carry out the prior art process with the expectation that one will obtain the results taught in the reference. The optimization of reaction conditions for a particular reaction system to optimize a result is well within the skill of the artisan through routine experimentation.

Claims 156-259 are rejected under 35 U.S.C. 103(a) as being unpatentable over USP 2,727,074. The reference is applied as above. Besides being anticipated by the

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[3] The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

reference, the claims read on obvious variants of the prior art process. It is well within the skill of the artisan to operate within the parameters suggested by the disclosure of the reference and carry out the prior art process with the expectation that one will obtain the results taught in the reference. The optimization of reaction conditions for a particular reaction system to optimize a result is well within the skill of the artisan through routine experimentation.

Claims 156-167 are rejected under 35 U.S.C. 103(a) as being unpatentable over USP 5,847,235 in view of USP 5,510,543. The references are applied as above. Besides being anticipated by the references, the claims read on obvious variants of the prior art process. It is well within the skill of the artisan to operate within the parameters suggested by the disclosure of the reference and carry out the prior art process with the expectation that one will obtain the results taught in the reference. The optimization of reaction conditions for a particular reaction system to optimize a result is well within the skill of the artisan through routine experimentation.

Allowable Subject Matter

Claims 1-8, 21, 22 and 125-128 stand allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Michael L. Shippen** whose telephone number is **(703) 308-4635**. The Examiner's normal tour of duty is 7:30 AM to 4:00 PM. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is **(703) 308-1235**. The official group FAX machine number is **(703) 308-4556**.

MShippen
February 10, 2003

MICHAEL L. SHIPPEN
PRIMARY EXAMINER
ART UNIT 1621